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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,159	01/23/2002	Larry W. Bowman	60,130-1275 (01MRA0541)	9557

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EXAMINER

LEWIS, TISHA D

ART UNIT

PAPER NUMBER

3681

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n N .

10/055,159

Applicant(s)

BOWMAN, LARRY W.

Examiner

TISHA D. LEWIS

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7,9,10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5,7,9,10 and 12 is/are allowed.
- 6) ☒ Claim(s) 13-19 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

The following is a response to the amendment received on July 15, 2003 which has been entered.

#### ***Response to Amendment***

Claims 1-5, 7, 9, 10 and 12-20 are pending in which claims 6, 8 and 11 have been cancelled.

-The 112 2<sup>nd</sup> rejection of claims 3-12 and 15-20 has been withdrawn due to amendment clarifying the indefinite recitation of the claims as indicated in the office action mailed on March 18, 2003.

-Applicant's arguments with respect to the rejection(s) of claim(s) 1-20 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection has been made.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hvolka ('351). As to claim 13, Hvolka discloses a wheel drive unit for a shuttle car having,

a non-rotating spindle (20) mounted to the vehicle having an interior bore,

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a wheel hub (42) supported on a bearing (47) and providing an opening for a reduction gear unit having an input (24) and an output (32) coupled to the hub, and an electric motor (10) wherein a housing of the motor is mounted within the bore of the spindle and an output shaft (14) of the motor is operatively coupled to the input of the reduction gear to drive the wheel hub.

As to claim 14, Hvolka discloses the reduction gear unit having an inner ring gear (28) mounted to the spindle (via 54) and coupled to the input (via 26) and an outer ring gear (36) mounted to the wheel hub and coupled to the output (via 34).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hvolka in view of Rosen ('376). Hvolka discloses the reduction gear unit having a plurality of inner gears (26) meshing with the inner ring gear and a plurality of outer gears (34) meshing with the outer ring gear, but does not disclose the inner and outer gears paired together on a common shaft rigidly.

Rosen discloses a manner of constructing a reduction gear assembly including plural gear pairs (inner and outer gears 22 and 24) rigidly mounted to a common shaft (20).

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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the reduction gear unit of Hvolka in view of Rosen to compensate for eccentric tolerances in the unit resulting in load equilibrium by having the inner and outer gears mounted rigidly to a common shaft.

Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hvolka in view of Rosen as applied to claims 13 and 14 above, and further in view of Knobloch et al ('000). As to claim 16, Hvolka discloses inner and outer gears for a reduction gear unit, but does not disclose the number of teeth for each gear.

Rosen discloses inner and outer gears for a reduction gear unit, but does not disclose the number of teeth for each gear.

Knobloch et al discloses a reduction gear unit including a plurality of inner gears (120) meshing with an inner ring gear (26) and a plurality of outer gears (122) meshing with an outer ring gear (30) wherein (table in column 5) the inner gears have a first predetermined number of teeth different from the outer gears second predetermined number of teeth.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the inner and outer gears of Hvolka and Rosen with a different number of gear teeth in view of Knobloch et al which provides a wider range of gear reduction ratios between the input and output of the wheel drive unit.

As to claim 17, Hvolka discloses the input of the reduction gear unit being a sun gear (24) meshing with the inner gears and mounted for rotation with the motor output shaft (via 16).

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As to claims 18 and 19, Hvolka discloses the reduction gear unit having a plurality of inner gears (26) meshing with the inner ring gear and a plurality of outer gears (34) meshing with the outer ring gear and spiders (30, 38) supporting the gears, but does not disclose the inner and outer gears paired together on a common shaft rigidly by the spiders.

Rosen discloses a manner of constructing a reduction gear assembly including plural gear pairs (inner and outer gears 22 and 24) rigidly mounted to a common shaft (20) supported by a spider (28) which rigidly connects the inner and outer gears to the common shaft.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the reduction gear unit of Hvolka in view of Rosen to compensate for eccentric tolerances in the unit resulting in load equilibrium by having the inner and outer gears mounted rigidly to a common shaft.

***Allowable Subject Matter***

Claims 1-5, 7, 9, 10 and 12 are allowed. The following is an examiner's statement of reasons for allowance: The prior art of record does not disclose or render obvious a motivation to provide for:

-(As to claim 1) an electronic drive unit assembly having a plurality of planet gear sets mounted to a spider ***directly*** supported by an output shaft of an electric motor in combination with the electric motor being mounted within a chamber of a non-rotating spindle of a wheel hub which has a chamber for supporting an inner ring gear and the chamber of the spindle supporting an outer ring gear.

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Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or render obvious a motivation to provide for:

-an electronic drive unit assembly having inner and outer gears mounted to a common shaft which is supported by a spider in **direct** driving engagement with an output shaft of an electric motor.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Myers ('045), Iijima et al ('564), Forster ('281), Hewko et al ('229) and Japanese patent 02011419A are cited as having an electric drive unit having electric motors controlling a reduction gear unit of a wheel hub.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to TISHA D. LEWIS whose telephone number is 703-305-0921. The examiner can normally be reached on M-Thur 8 AM TO 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHARLES A. MARMOR can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.

Tdl

September 22, 2003

  
Tisha D. Lewis  
Patent Examiner  
Art 3681 9-22-03